Bureau of Apprenticeship Standards **Revised 05/31/2013**

Instrument Mechanic Apprenticeship
Electrical & Instrumentation Committee

O*Net Reference Code: 17-3023.02 - Calibration and Instrumentation Technicians
DOT Code: 710.281-026

Wisconsin Apprenticeship Program: The Instrument Mechanic program is a four year apprenticeship program of not less than 8,320 hours to include 720 hours of Paid Related Instruction. In addition to the paid related school attendance, the apprentice shall complete the Standard Red Cross First Aid and CPR courses during the first year of the apprenticeship. Certification will be maintained throughout the apprenticeship. An apprentice in his/her final year must satisfactorily complete the Transition to Trainer course.

Work Description

Install, calibrate, test, adjust, troubleshoot and repair electronic equipment, such as industrial controls, transmitters and antennas.

Working Conditions

Instrument Mechanics work in industrial manufacturing, including paper and wood mills, food processing, printing, breweries, electronics, metal fabrication, and a variety of other industries. Instrument Mechanics must be able to stand for long periods of time and work in cramped or uncomfortable positions and on ladders and lifts. They often work with hands above head, in confined spaces and in a variety of conditions and temperatures, both hot and cold. They use personal protective equipment to avoid common hazards, such as safety belts, protective glasses and/or hard hats.

Tasks

- Process Measuring/Indicating Devices: install, troubleshoot, repair, calibrate pressure/vacuum gauges, transducers, temperature sensing devices, flow measuring devices, pressure transmitters, level transmitters, pneumatic transmitters, chart drives, chart recorders, and other indicator/controllers.

- Distributive Control Systems (DCS)/Programmable Logic Controllers(PLC): Install, troubleshoot, repair, fine tune and program or understand programming.

- Process Actuators: Install, troubleshoot, repair, calibrate control valves, drive systems, and electric actuators.

- Blue Print Reading: Ladder logic; process and instrument diagrams; schematics.

- Calibration and Test Equipment

- Safety:_Safety equipment and procedures.

- Computer Literacy: data communications media; basic computer use.

Knowledge

Computer: Knowledge of basic computer functions and applications.

Computers and Electronics: Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.

Level of Educational Attainment: Possess high school diploma, General Equivalency Diploma (GED), or high school equivalency certificate.

Mathematics: Knowledge of arithmetic, algebra, geometry, and their applications.

Mechanical: Knowledge of tools, including their uses and maintenance.

Public Safety and Security: Knowledge of relevant equipment, high pressure safety, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection people, data, property, and institutions; and awareness of OSHA regulations, Environmental Protection Agency (EPA) regulations, Department of Transportation (DOT) regulations, and National Fire Protection Association (NFPA) regulations.

Skills

Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Communication: Oral and written with an emphasis on understanding verbal instructions, written sentences and paragraphs in work related documents.

Time Management: Managing one's own time and the time of others.

Troubleshooting: Determining causes of operating errors and deciding what to do about it.

Abilities

Arm-Hand Steadiness: The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Manual Dexterity: The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Near Vision: The ability to see details at close range (within a few feet of the observer).

Problem Sensitivity: The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Reasoning: The ability to apply general rules to specific problems to produce answers that make sense. The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

Trunk Strength: The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

Visual Color Discrimination: The ability to match or detect differences between colors, including shades of color and brightness.